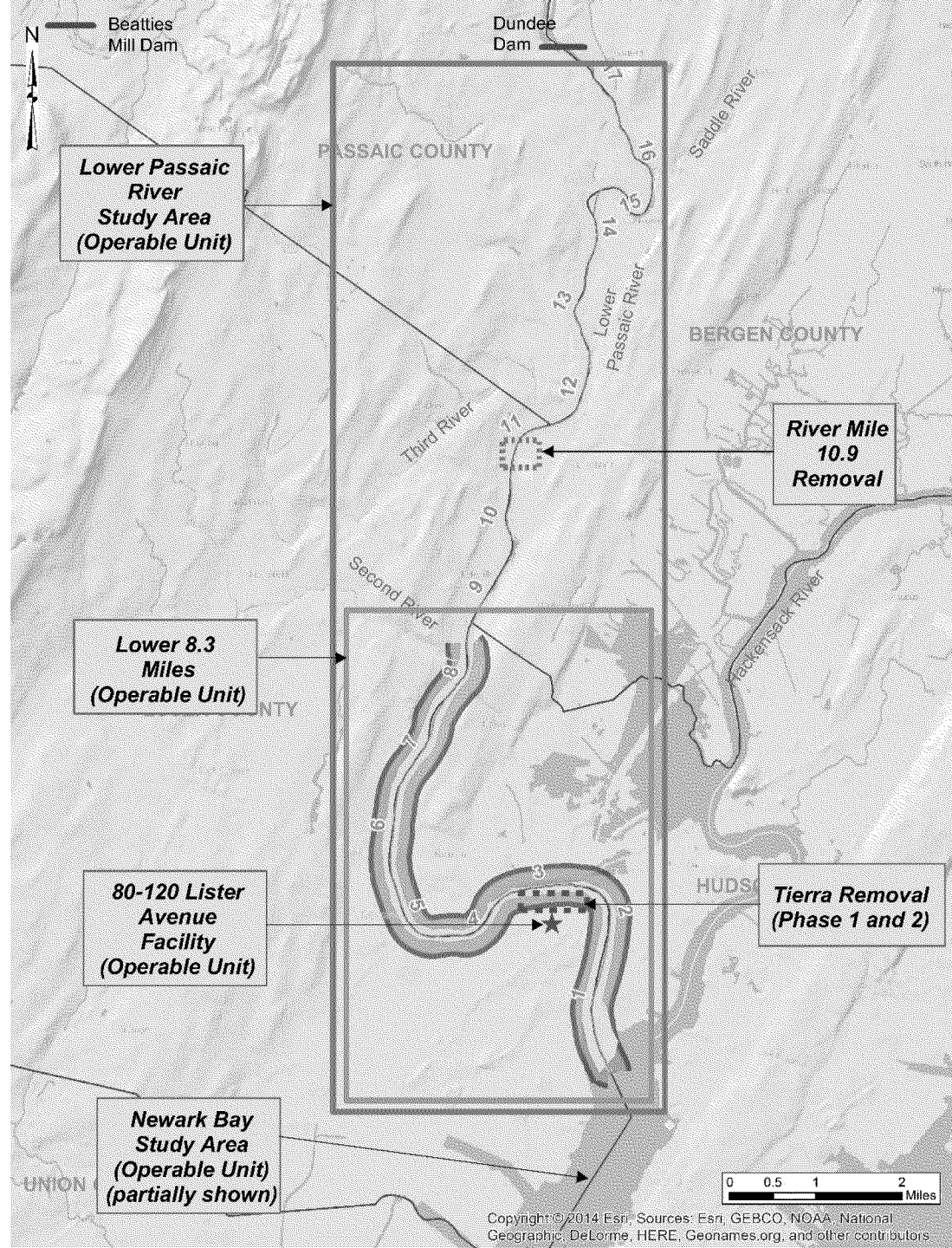


# Outline

- Selected Remedy Concept Design
- Critical Design Issues
- Performance Standards
  - Engineering Performance Standards
  - Quality of Life Performance Standards
- Next Steps/Schedule

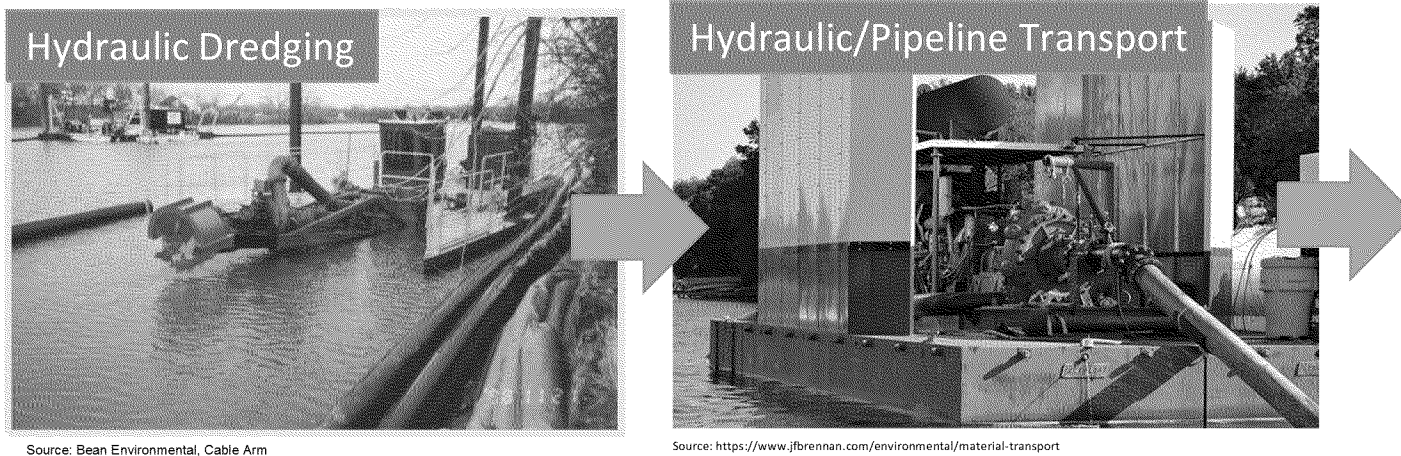
# Selected Remedy Concept Design



# Selected Remedy Summary

- Engineered cap bank-to-bank over lower 8.3 miles (w/maintenance)
- Dredge enough contaminated fine sediments to:
  - Prevent additional flooding after cap is installed
  - Allow for navigation channel in RM 0 to RM 1.7
    - 30 ft below MLW from RM 0 to RM 0.6
    - 20 ft below MLW from RM 0.6 to RM 1.7
  - Institutional controls and Long Term Monitoring

# Off-site Disposal Process



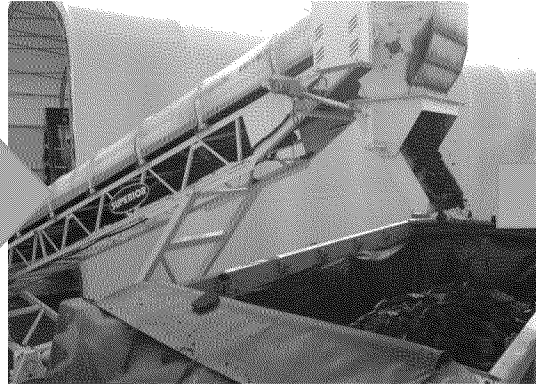
# Off-site Disposal Process (continued)

Dewatering



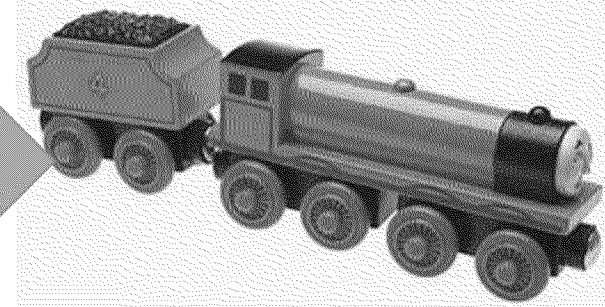
Courtesy of Stuyvesant Environmental Contracting, LLC (Boskalis-Dolman)

Dewatered Material for Treatment / Disposal



Courtesy of Stuyvesant Environmental Contracting, LLC (Boskalis-Dolman)

Off-site Disposal



[http://www.dfo-mpo.gc.ca/regions/central/pub/fact-fait-mb/mb1\\_e.htm](http://www.dfo-mpo.gc.ca/regions/central/pub/fact-fait-mb/mb1_e.htm)

Water Treatment Plant



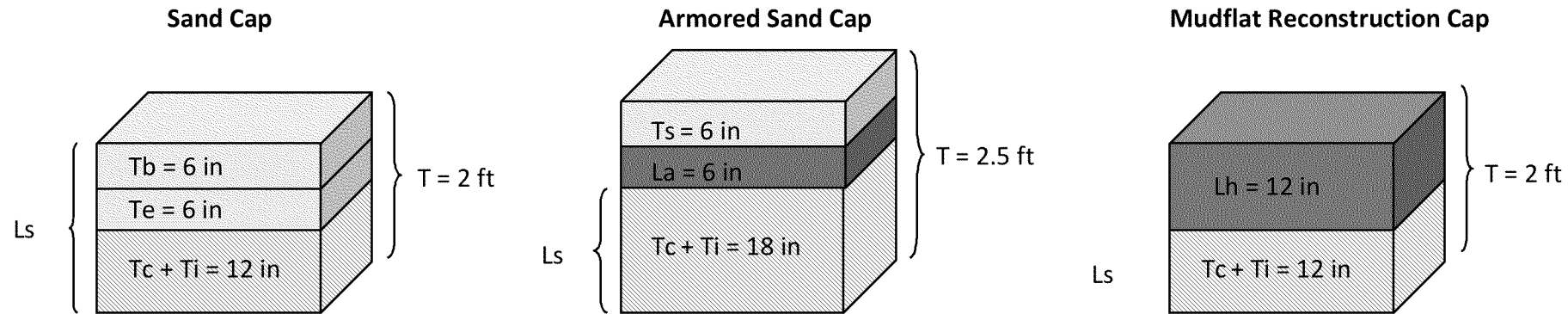
Courtesy of Stuyvesant Environmental Contracting, LLC (Boskalis-Dolman)

# Waste Characterization

- EPA has determined that Passaic River sediment is not a listed waste
- Material must be managed as hazardous waste if it exhibits a RCRA hazardous characteristic (reactivity, ignitability, flammability, toxicity)
- Material must be treated prior to disposal if it contains Underlying Hazardous Constituents (UHCs) which exceed 10X the Universal Treatment Standard (UTS)
- Beneficial use of suitable dredged material (e.g., sand)



# Capping Concepts



## Legend

$L_a$  – Armor Layer

$L_h$  – Habitat Layer

$T$  – Total Thickness

Sand Layer ( $L_s$ ) Components:

$T_b$  – Bioturbation Component

$T_e$  – Erosion Component

$T_c$  – Consolidation Component

$T_i$  – Chemical Isolation Component

$T_s$  – Smoothing Component





# Critical Design Issues

# Critical Design Issues

- Bridge Constraints
- Dredging Method
- Sediment Processing Facility Siting
- Cap Performance
- Recontamination of Cap
- Shorelines (limits, stability)
- Utilities, Bridge abutments, other structures
- Navigational/recreational use
- Offsite Transportation & Disposal



# Performance Standards (Current Status)

# Performance Standards

Purpose of the Performance Standards is to:

- Inform design and implementation of EPA's selected remedy.
- Support achieving RAOs set forth in the ROD.
- Minimize short-term impacts to surrounding community.
- Promote accountability with Stakeholders

# Engineering Performance Standards

The engineering performance standards include performance standards for:

- Cap Design and Construction
- Resuspension for Dredging and Capping
- Productivity for Dredging and Capping

# Quality of Life Performance Standards

The quality of life performance standards may include performance standards for:

- Air Emissions
- Odor
- Noise
- Lighting
- Navigation
- Traffic

# Engineering Performance Standards

# Interaction among the Engineering Performance Standards

Designed to balance each other - each standard sets requirements that potentially impact those required by the other two standards.

- The Performance Standard for Cap Design and Construction is critical to achieving the long-term goals .
- The Resuspension Performance Standards for Dredging and Capping will prevent short-term releases from affecting the long-term goals and limit upstream and downstream migration of COCs.



# Interaction among the Engineering Performance Standards (continued)

- The Productivity Performance Standards for Dredging and Capping
  - Desirable to complete remedial action within ROD estimate (6 years)
  - Reduce short term impacts to river and adjacent communities.
- Productivity important but not to be achieved at the expense of the Cap Design and Construction or Resuspension standard.

# Cap Design and Construction

- Provides flexibility to RD Team to design and deploy cap equivalent to EPA's concept design
- An equivalent cap is one that may result in smaller sediment removal volume provided that:
  - a) Cap is protective
  - b) Required depths of the navigation channel below RM 1.7 are achieved
  - c) flooding potential is not increased from current conditions.

# Cap Design and Construction (cont)

What EPA is developing to help guide the RD Team:

- Criteria to be met
- Assumptions
- Measurements
- Analyses and Evaluations
- Required Response / Corrective Action

# Resuspension for Dredging and Capping

Issues to consider:

- Water column monitoring measurement:
  - Dioxin and other COCs measurement
  - Conductivity, temperature, water depth, TSS, acoustic backscatter and turbidity
  - Surrogate of COCs for laboratory rapid turn-around
  - River flow
  - Frequencies
  - Flux to Newark Bay and upper nine miles
- Tiered contaminant thresholds/levels for action
- Monitoring station locations (e.g., near-field and far-field)

# Productivity for Dredging and Capping

## Purpose:

- Establish a minimum annual productivity quota to determine measurable targets for the remedial work

## The standard will include the following:

- Required/target dredging productivity
- Monitoring and Record Keeping

# Productivity for Dredging and Capping (cont)

Dredging productivity is influenced by:

- Dredging Method – mechanical vs. hydraulic
- Sediment Processing Facility
- Construction Season

Other key factors:

- Capping productivity is limited by how much area is “cleared” by dredging
- Sequence of work may affect duration of remedy
- Due to physical constraints in the river, dredging/capping production varies depending on location and dredging/placement method
- Changes in volume and length of fish window will impact dredging duration differently for different sequences and dredging/capping methods

# Quality of Life Performance Standards

# Quality of Life Performance Standards

- Standards may be developed for the following areas: Air emissions, Odors, Noise, Lighting, Navigation / Use of River, and Traffic
- RD and RA will comply with EPA Region 2 Clean and Green Policy

<https://www.epa.gov/greenercleanups/epa-region-2-clean-and-green-policy>

- Receptor analysis should be considered when developing RD
- Consider need to establish baseline conditions during RD
- Develop complaints management and tracking plan to address complaints in a timely manner



# Air Emissions

- Emissions will comply with state and federal emission limits
- During RD
  - Document compliance with regulations through modeling, calculations, or other efforts
- During RA
  - Minimize emissions that potentially impact human health
  - Conduct monitoring to verify compliance

# Odors

- Minimize impact on use of property as per N.J.A.C. 7:27.5
- During RD:
  - Develop approach to minimize release of odors
  - Identify locations/activities with greatest potential for releases
  - Develop contingency plans
- During RA
  - Minimize / control odors to the extent practicable by use of BAT

# Noise

- Levels shall not exceed established limitations for daytime and nighttime operations.
- During RD
  - Document through modeling, calculations, or other efforts
  - Identify areas/activities having the greatest impacts
  - Develop contingency plans.
- During RA
  - Manage operations to minimize impacts
  - Limit percussive noises to day time hours, where practicable

# Lighting

- During RD

- Incorporate requirements for downlighting, shrouds, natural screening, etc.
- Identify areas/activities that have the greatest lighting impacts
- Develop contingency plans

- During RA

- Manage operations so light intrusion does not interfere with use of property
- Ensure that lighting does not pose a safety risk to vehicular traffic (e.g., glare, blinding)

# Navigation / Use of River

- During RD
  - Maximize access to the river to the extent practicable
- During RA
  - Minimize limitations on river access; communicate restrictions in a timely manner

# Traffic

- During RD
  - Plan for facility construction and operations phases
  - Address on-site parking, truck staging, sequence of arriving / departing shipments, truck routes, penalties for use of alternative routes
  - Consider traffic at remote facilities (if any)
- During RA
  - Monitor and manage traffic at the site to ensure compliance with the traffic management plan

# Performance Standards Next Steps/Schedule

- Draft – Spring 2017
- Questions?

